

Eph. interpunctella Hb.

Sydney, Parramatta, common. The larva feeds in corn-bins, apparently especially on maize, in company with *Sitotroga cerealella*, doing considerable damage.

GALLERIDÆ.

GALLERIA F.

Gall. mellonella L.

Specimens of this insect are sent from Queensland, where it is considered destructive; the larva feeds in bee-hives on the wax.

ACHROEA Hb.

Achr. grisella F.

Sydney, Parramatta, Melbourne; common in February and March. The larva feeds in bee-hives on the wax, causing very great destruction if not checked; but I have also seen it very abundant in a fruit-shop in Sydney, which may indicate some versatility of habit.

ON THE GEOLOGY OF YASS PLAINS.

[SECOND PAPER.]

BY CHARLES JENKINS, ESQ., L.S., YASS.

Plate 17.

In endeavouring to describe some of the fossils enumerated in my former paper, I necessarily labour under the disadvantage of having at Yass no opportunities of making such comparisons, or at present the references, I could wish. Without assuming such special knowledge, as only a life exclusively devoted to Palæontology can give, I hope, however, by detailed drawings and descriptions, to place before you the specific nature of the different fossils in such a manner that, if my determination should be wrong, it may be at once apparent to those better qualified to judge than myself.

I propose, in the first place, to deal with those fossils which I either consider the more remarkable, or are well-known and regarded in other countries as characteristic of particular zones,

or such as specially characterise, by their number and variety, the strata in which they are found here.

I am naturally much assisted by Prof. Koninck's work, in which several of the Silurian species found in the Yass and Hume beds are described.

CHEIRURUS INSIGNIS. Fig. 8, Pl. 6.

This specimen so exactly coincides with the description of the *pygidium* of Prof. Koninck* in having four pairs of ribs, the last pair of which form a rudimentary spire following the direction of the axis, that there can be no doubt about its identity. All the species I have yet obtained agree in the above particulars; but the relative lengths of the lateral portions do not seem to be constant. The specimens of this part of the *Cheirurus insignis* are associated, chiefly in the lower portion of the Hume beds, with other portions of *Cheirurus* (Figs. 5, 6, 7; Pl. 6); but I have not been able to obtain a specimen in which the different parts are united.

BRONTEUS.

As there is some difference in the terms used by different writers in naming respectively the three principal segments of *Trilobites*, I may observe that I shall in my descriptions call the anterior portion the head segment, the middle portion the thorax, and the posterior portion the pygidium.

As the exact form of the head, and disposition of the eyes of this genus, do not appear to be well-known, I am fortunate in having several specimens from which these particulars can be obtained. The specimen of nearly a whole *Trilobite*, which has enabled me to give the restored Fig 5, has some of the ribs of the thorax overlapping and displaced, and part of the cheeks at the facial suture separated and removed. The position and size of the eyes are distinctly indicated. One eye is perfect, and, with a portion of the cheek, rests upon another part of the *Trilobite*. A perfect impression of the external portion of the cheek, belonging to a *Trilobite* of the same size and proportion, enabled me to complete the form of this part. The form of the

*Reserches, sur les Fossiles, Paleozoiques de la Nouvelle Galle de Sud, page 48.

head segment is nearly semi-circular, rather more than twice as broad as long, and almost flat. Anterior outline rather regularly curved. The external posterior angles pointed and acute. The concave-convex outline of the posterior margin of each cheek is interrupted by an angular tooth-like projection.

The Glabella is slightly raised posteriorly, depressed anteriorly. Broadest in front and narrowest at the second furrow at about a quarter the length of the glabella from the base—outline concave laterally to about 2 millimetres from the anterior margin, when it becomes slightly convex. Separated from the lateral portions, or cheeks, by a sinus 1 millimetre broad $\frac{3}{4}$ millimetre deep to about 2 millimetres from the anterior margin, after this the separation becomes gradually fainter and hardly perceptible at the very front.

There are four furrows on its surface counting from the base, the first entire, the second nearly so, the third and fourth arched to about $\frac{1}{3}$ of the width of the Glabella, and more deeply marked at their inner termination.

Surface of Glabella covered with concentric folds, the edges of which are about $\frac{1}{2}$ a millimetre apart.

The cheeks subtriangular, the inner and posterior margins of nearly equal length. The anterior longer. The eyes are sessile and somewhat reniform. Rather more prominent at the anterior third, and slightly raised above the other parts of the cheek. Facets not so large as those of *Phacops*. The spaces between the eyes and exterior margins of the cheek, occupied by three curved depressions radiating from the front, and by intervening slight elevations. The sinus and ridge nearest the eye being more curved and sharply defined than the others.

Three curved slight ridges concave exteriorly and radiating from the anterior corner extend from the inner margin of the cheek to the eye. The surface is covered with small folds, some being paralld to the anterior edge, and forming a border about 2 millimetres in width, others form a narrow border to part of the posterior margins, while those in the intervening space radiating, follow somewhat the outline of the eye. One

portion of the facial suture extends in an undulating curve from the upper interior corner of the eye to the outer anterior corner of the Glabella; the other portion from the posterior corner of the eye, extends downwards to the posterior outline of the cheek.

The Thorax contains eleven segments, the central portion or axis slightly convex and raised a little above the ribs, which are flat or nearly so. The segments of the axis are nearly straight, depressed anteriorly, the depression having a convex outline posteriorly. There is a linear groove near the anterior and posterior edges of the segments; the posterior groove of the one segment covers the anterior groove of that adjoining. Each segment is crossed by 10 to 12 folds ranged somewhat concentrically round a point in the centre of its posterior half. Separated from the lateral portions or ribs by a sinus 1 millimetre wide, sinus concave exteriorly in the centre, convex at the edges. Outline of axis convex exteriorly, width greatest in the middle.

The ribs are flat, and straight for the greatest part of their length, then curved backward, and terminate in a flat claw-shaped acute angle. In the straight portion there is a linear groove near the anterior to posterior edges, leaving a somewhat ragged margin. This depression is continued into the curved terminations.

As in the segments of the axis, the posterior linear groove of one rib covers the anterior groove of the adjoining rib.

The curved portion is shorter and sharper in the segments that are near the pygidium, and its commencement is marked on each margin of the ribs by a slight punctation.

The pygidium is nearly flat, slightly raised in the centre; semicircular for about two-thirds its length at the anterior third, sides nearly straight and parallel; anterior margins slightly projecting in the centre with a linear depression near the margin. Axis subtriangular, composed of three segments; component parts rather obscurely marked, except at the edges. Each part depressed anteriorly, and crossed by folds like the segments of the axis of thorax. Axis separated from the ribs, fifteen in number, by a sinus 1 millimetre wide. The central rib is the largest, that next the line of articulation of the thorax wider at the

extremity than the remainder. These ribs have the appearance of plaits folded from the outside towards the centre. The inner margin of each fold near the axis presents a well defined sharp edge, which becomes slight and almost insensible at the margin.

The surface is covered with three distinct series of folds; these divide the surface into three areas, in each of which one series appears more distinct than the others. The first area, counting from the external edge, extends to about 3 millimetres from the margin; the second zone has a width of about 4 millimetres; the third occupies the remainder of the surface.

In the last area the ribs are crossed by twelve or thirteen folds, at right angles to the direction of the ribs only in the centre rib. These have the appearance of being folded from the anterior outline. The next consists of four regularly curved concentric folds, appearing to be folded from the exterior towards the centre. In the external area the folds are less regular and form parts of curves of larger radii than the preceding. These appear also as if folded inward. These different series are not however confined to the areas specified, but extend to the other parts, though they are not then so distinct.

This species is certainly very distinct from the characteristic Devonian species, *Bronteus flabellifer*, though, from its fan-like pygidium, it well deserves the name. It appears to be more related if not identical with *Bronteus Partschi*, the pygidium of which is described by Professor Koninck.* Except in the actual size, the description of Professor Koninck, as far as it goes, applies well enough to the smaller specimens I have obtained. According to the same author, M. Barraude found in Bohemia *Bronteus Partschi* in the lower part of the Upper Silurian.

The specimen of *Bronteus* I have figured (figs. 4, 5, 6, and 8), are most abundant about the middle of the Hume beds, some few, however, I have obtained lower, and two specimens in the Yass beds.

In the specimens of different sized individuals, there is considerable variation in the proportions of the corresponding parts.

* Page 57.

In the pygidium especially, the smaller sized being longer in proportion to the breadth, and semi-oval.

In the larger (fig. 8), the outline forms a segment of a circle described from the posterior angle of the furrow, separating the axis from the pygidium. The anterior corners are slightly rounded in the smaller but not in larger. I do not know, however, that these variations are of specific value.

DIMENSIONS OF FIG. 5:—

Whole length	60	millemetres
Breadth of head segment	36	„
Length „	15	„
Length of thorax	18	„
Greatest breadth of axis	12	„
Width of Pygidium	34	„
Length „ „	27	„
Greatest width of Glabella	18	„
Width at base	9	„
Width between external edge of eyes	18	„

REFERENCE TO PLATE 17.

- Fig. 1.—*Homalonotus*, from the lower division of the Hume beds (natural size).
- 2.—Portion of head segment of *Trilobite* (twice the natural size) associated with *Bronteus*.
- 3.—*Bronteus*, partly restored (natural size)
- 4.— „ part of Glabella „
- 8.— „ pygidium, largest found in these beds
- 6.— „ portion of Thorax (twice the natural size) } Hume beds
- 7.—*Cheireirus* (natural size) lower part of Hume beds.
- 5.—*Aciduspis Brightii* (natural size) lower part of Hume beds
- 9.—*Phacops* (natural size), Yass beds.

Description of a new species of VIVIPARA.

By J. BRAZIER, C.M.Z.S., Corr. Mem. Roy. Soc., Tas., &c., &c.

VIVIPARA ALISONI.

Shell ovately conical, smooth, rather solid, white beneath a greenish-yellow epidermis, whorls $4\frac{1}{2}$; slightly convex, the last large, roundly convex; umbilicus small, open, aperture pyriformly ovate, peristome thin at the right margin; base and